



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

On Appeal to the Board of
Appeals and Interferences

Applicant : Eleftheriadis et al.

Serial No. : 09/367,433

Group Art Unit : 2614

Filed : January 13, 2001

Examiner : Jean W. Desir

Title : OBJECT-BASED AUDIO-VISUAL TERMINAL
AND BIT STREAM STRUCTURE

BRIEF ON APPEAL

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September 8, 2006

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09/12/2006 CNGUYEN 00000020 09367433

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BRIEF ON APPEAL

This brief on appeal is filed in response to a Final Office Action issued by the U.S. Patent and Trademark Office (the "PTO") on February 23, 2006.

On May 25, 2006, Appellants filed a Notice of Appeal in the above-identified patent application from the final rejection of claims 1-10. In accordance with 37 C.F.R. § 41.37, this Appeal Brief is submitted in support of the Appeal of the final rejection. The fee for this Appeal as set forth in 37 C.F.R. § 41.20(b)(2) is provided herewith. For the reasons set forth below, the final rejection of pending claims 1-10 should be reversed.

I. REAL PARTY IN INTEREST

The real party in interest is The Trustees of Columbia University in the City of New York, by way of assignment from the named inventors, recorded on January 13, 2000, at Reel 010525, Frame 0615.

II. RELATED APPEALS AND INTERFERENCES

Appellants and the Appellants' legal representatives are unaware of any appeals or interferences related to the present application which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

In the February 23, 2006 Final Office Action, claims 1-10 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,826,102 to Escobar et al. (hereinafter "Escobar"). Appellants respectfully traverse the rejections of record.

A copy of all of the pending claims is attached hereto in the Claims Appendix at page A-1.

IV. STATUS OF AMENDMENTS

Subsequent to the issuance of the Final Official Action dated February 23, 2006, no further amendments to the claims have been filed by Appellants.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application relates generally to the representation, transmission, processing and display of video and audiovisual information. (See, e.g., Specification, page 1, lines 1-5; p. 10, lines 10-16; p. 15, lines 5-13).

The claimed subject matter described in the above-identified application is directed to methods and systems for displaying object-based audiovisual/video data. More specifically, independent claim 1 and its corresponding dependent claims 2-7 are directed to methods for displaying object-based audiovisual/video data, comprising:

(a) streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver;

(b) at the receiver, storing in a cache memory at least one of the objects;

(c) processing the composition information received in the data bitstream to compose scenes from said objects including the one of the objects stored in the cache memory; and

(d) displaying the composed scenes.

(Claim 1).

Exemplary support for these claim limitations can be found throughout the specification and figures, including, e.g., as follows:

(a) streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver; [exemplary support for these limitations may be found at, e.g., specification, p. 4, lines 5-11 (“A composition packet contains an object’s ID, time stamps and the ‘composition parameters’ for rendering the object. An object data packet contains an object ID, an expiration time stamp in case of persistent objects, and object data.”); Figs. 3-5]

(b) at the receiver, storing in a cache memory at least one of the objects; [exemplary support for these limitations may be found at, e.g., specification, p. 11, lines 21-24 (“The terminal further includes input buffers 3. AV object decoders 4, buffers 4’ for decoded data, a composer 5, a display 6, and an object cache 7.”); p. 12, lines 10-15 (“In the object cache 7, objects are stored for use beyond their initial presentation time. Such objects remain in the cache even if the associated node is deleted from the scene graph, but are removed only upon the expiration of an associated time interval called the expiration time stamp.”)];

(c) processing the composition information received in the data bitstream to compose scenes from said objects including the one of the objects stored in the cache memory; and [exemplary support for these limitations may be found at, e.g., specification, p. 13, lines 5 – p. 14, line 31];

(d) displaying the composed scenes. [exemplary support for these limitations may be found at, e.g., specification, p. 13, lines 5-20]

Similar limitations, but in apparatus form, are provided in independent claim 8, including, e.g.,:

(a) a controller circuit for controlling acquisition over time of streaming data including a plurality of audio visual/video objects and composition information for the objects;

(b) a cache memory for storing at least one of the objects;

(c) a composer circuit, coupled to the cache memory, for processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and

(d) a display for the composed scenes.

(Claim 8).

Also, as recited in claim 9:

(a) controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects;

(b) storing in a cache memory at least one of the objects;

(c) processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and

(d) displaying the composed scenes.

(Claim 9).

Finally, as recited in claim 10:

(a) means for controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects;

(b) means for storing in a cache memory at least one of the objects;

(c) means, coupled to the cache memory, for processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and

(d) means for displaying the scenes.

(Claim 10).

Generally, the application relates to challenges in the art of video encoding/decoding. In some embodiments of the claimed subject matter, information to be processed at an object-based video or audio-visual (AV) terminal includes an object-oriented bitstream comprising objects, composition information, and scene demarcation information. The

bitstream structure allows on-line editing, e.g., cut and paste, insertion/deletion, grouping, and special effects. (Specification, p. 1, line 27 – p. 2, line 3).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-10 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,826,102 to Escobar et al. (hereinafter “Escobar”). Appellants respectfully request review of all rejections of record.

VII. ARGUMENT

A. The Rejections Under 35 U.S.C. § 102(e) in view of Escobar Should Be Reversed

Pending claims 1-10 have been finally rejected under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent No. 5,826,102 to Escobar et al. (“Escobar”). Appellants respectfully traverse these rejections.

To establish an anticipation rejection, the cited reference must disclose every element of the claimed invention. 35 U.S.C. § 102(e) states, in pertinent part, that “[a] person shall be entitled to a patent unless the invention was described in (1) an application for patent ... by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent.” A patent claim is thus anticipated under Section 102(e) if, among other things, “identity of invention” is shown. *Minnesota Mining and Manufacturing Co. v. Johnson & Johnson Orthopedics, Inc.*, 976 F.2d 1559, 1565, 24 U.S.P.Q.2d 1321 (Fed. Cir. 1985). In finding identity of invention, the PTO “must show that each element of the claim in issue is found ... in a single prior art reference.” *Id.* The Federal Circuit has held that, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil*

Co. of California, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051 (Fed. Cir. 1987). Moreover, “[a] prior art publication cannot be modified by the knowledge of those skilled in the art for purposes of anticipation.” *In re Saunders*, 444 F.2d 599, 602-03, 170 U.S.P.Q. 213 (C.C.P.A. 1971).

Escobar does not disclose or suggest a technique for displaying object-based audiovisual/video data, including, among other things, “streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver” as recited in claim 1, or “controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects,” as recited in claims 8-10. Escobar further fails to disclose or suggest any techniques for “processing the composition information received in the data bitstream to compose scenes from the received objects” as recited in claim 1, or “processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory,” as recited in claims 8-10. As discussed more fully herein below, because Escobar fails to disclose or suggest at least these claimed features, Appellants’ respectfully submit that Escobar cannot anticipate the claimed invention and that, accordingly, all rejections of record should be reversed.

**1. Claims 1-7 Are Not Anticipated Because Escobar
Does Not Disclose “streaming in data bit stream,
over time, a plurality of audiovisual/video objects and
composition information for the objects, to a receiver”**

Appellants’ claim 1 recites “streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver.”

As disclosed in the specification, e.g., at p. 6, lines 10-14, the composition information may include composition parameters such as displacement from the upper left corner of the presentation frame, rotation angles, zooming factors. (FIGS. 2a-2c, and page 6 lines 10-

14), and thus is directed to where to position an object in a scene. Claim 1 thereby relates not merely to the use of encoded object-based structures in audio-visual transmission and scene display, but also to the use of the bitstream structure to convey, over time, composition information. No such arrangement is disclosed in or suggested by Escobar.

a. Composition Information

In contrast, Escobar merely describes using a computer to make a sequential time display of multimedia assets/objects on a time line. “Playback or execution of the [assets/] objects represented on the timeline occurs in a time sequence indicated by their position on the timeline.” (*See, e.g.*, col. 4 lines 5-20). Escobar does not disclose or suggest the claimed “composition information” because Escobar is not concerned with organizing the contents of a scene and does not show or describe composing a scene (*e.g.*, positioning objects in a scene). Escobar only describes the delivery and presentation of multimedia applications using timelines to integrate various multimedia and program assets. (*See, e.g.*, col. 7 lines 35-48 (“video assets from a video recorder, a variety of sounds recorded by an audio engineer, the film output from movie cameras with or without related audio tracks, and perhaps different films from different camera locations of the same scene shot by different cameras”)).

Accordingly, Escobar fails to disclose or suggest composition information as recited in Appellants’ claim 1, and therefore cannot and does not disclose “streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver,” as recited in claim 1. For at least these reasons, Escobar cannot anticipate claim 1, and the rejections of record should be reversed.

b. Audiovisual/Video Objects

Additionally, Escobar fails to disclose or suggest the feature of “streaming in a data bit stream, over time, a plurality of audiovisual/video objects,” as recited in claim 1. As described in Appellants’ specification, e.g., at pg. 1, lines 10-13, audiovisual/video objects “have visual relevancy, representing familiar physical objects, *e.g.*, a ball, a table, a person, a tune or a spoken phrase.” No such audiovisual/video objects are disclosed in or suggested by Escobar.

Escobar’s multimedia assets/objects are not encoded audiovisual/video objects streamed in a data bitstream. Unlike the subject matter of claim 1, Escobar is not concerned with the processing of object-encoded audiovisual compression data (*i.e.*, bitstream objects) of a scene for enhanced display at an audiovisual terminal. The “objects” or “assets” of Escobar (including film tracks, audio tracks, and the like) are not objects as recited in claim 1, as they could not be placed within a scene in the manner recited in claim 1. For at least this additional reason, because Escobar fails to disclose encoded objects in accordance with Appellants’ claimed subject matter, the rejections of record should be reversed.

c. Streaming

Escobar does not disclose or suggest “streaming in a data bitstream” both audiovisual/video objects and composition information as recited in claim 1. Rather, Escobar describes using edit decision lists (EDL) and interactive decision lists (IDL), which capture the editing decisions made by a user of an authoring tool to control timing of playback or execution of the multimedia assets/objects. (*See, e.g.*, col. 4 lines 24- 36). Escobar describes storing IDL/EDL as an application as an ASCII file. (*See, e.g.*, col. 10 lines 52-55). As such, Escobar does not disclose streaming of composition information or objects (or even IDL/EDLs) to a client/receiver. For at least this additional reason, because Escobar fails to disclose or suggest at

least the claimed “streaming in data bit stream, over time, a plurality of audiovisual/video objects,” Escobar cannot anticipate claim 1.

Appellants respectfully submit that the Office Action (page 2) mistakenly cites Escobar col. 4, lines 33-39, col. 6, lines 37-40 and col. 12, lines 46-47, and Escobar col. 6, lines 41-45, col. 4, lines 16-18 and col. 21, lines 26-31 as disclosing the limitations of Appellants’ claim 1. Appellants note, for example, Escobar at col. 4 lines 33-39 describes executing “the IDL” at either an end-user location or a server location to control “playback of running of the interactive multimedia application.” Appellants submit that this description merely implies that the multimedia playback assets/objects may be retrieved from storage and assembled in a suitable time sequence at either user or server locations. The cited portions of Escobar neither mention nor support an inference of streaming scene composition information for objects, as recited in the claimed subject matter.

For all of the above reasons, Appellants respectfully submit that the rejections of record of claim 1 as anticipated by Escobar should be reversed. The rejections of corresponding depending claims 2-7 should also be reversed for at least the same reasons discussed above.

2. Claims 8-10 Are Not Anticipated Because Escobar Does Not Disclose “controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects”

Independent claims 8, 9 and 10 each contain limitations similar to those discussed above with respect to claim 1. For at least those reasons discussed above with respect to claim 1, because Escobar fails to disclose or suggest the claimed “controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects,” the rejections of claims 8-10 should also be reversed.

3. **Claims 1-7 Are Also Not Anticipated Because Escobar Does Not Disclose “processing the composition information received in the data bitstream to compose scenes from the received objects”**

Additionally, Escobar does not disclose or suggest “processing the composition information received in the data bitstream to compose scenes” as recited in Appellants’ claim 1.

Escobar at col. 4, lines 16-18 and col. 12, lines 46-47, merely describes arranging or positioning the multimedia assets/objects in a time sequence for playback. As discussed above, the assets may include “video assets from a video recorder, a variety of sounds recorded by an audio engineer, the film output from movie cameras with or without related audio tracks, and perhaps different films from different camera locations of the same scene shot by different cameras.” (Escobar, col. 7 lines 35-48). The assets or objects of Escobar are just digitized versions of these items, such as video clips. *Id.* The already-completed video clips of Escobar are not “composed,” and, indeed, no composition information is required to display the video clips of Escobar. As a result, the cited portions of Escobar neither mention nor support inference of “processing the composition information” to compose the objects in a scene.

Thus, contrary to the allegations in the Office Action, Escobar does not disclose or suggest “processing the composition information received in the data bitstream to compose scenes from the received objects,” as recited in Appellants’ claim 1. Additionally, this claim limitation is included in claims 2-7 via dependency from claim 1. Accordingly, for at least these additional reasons, Appellants respectfully submit that Escobar fails to disclose or suggest all elements of claims 1-7 and, therefore, cannot anticipate Appellants’ claimed subject matter. Appellants respectfully request reversal of all rejections of record for at least these additional reasons.

4. **Claims 8-10 Are Also Not Anticipated Because Escobar Does Not Disclose “processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory”**

Independent claims 8, 9 and 10 each contain limitations similar to those discussed above with respect to claim 1. For at least those reasons discussed above with respect to claim 1, because Escobar fails to disclose or suggest the claimed “processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory,” the rejections of claims 8-10 should also be reversed.

B. Conclusion

For at least the reasons discussed above, Appellants respectfully submit that the invention recited in the claims of the present application, as discussed above, is not anticipated by the cited prior art. Reversal of the Examiner’s rejections of the claims is therefore respectfully requested.

Respectfully submitted,

Dated: September 8, 2006

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VIII. CLAIMS APPENDIX

Claims 1-10 are pending in this application:

1. A method for displaying object-based audiovisual/video data, comprising:
 - (a) streaming in a data bit stream, over time, a plurality of audiovisual/video objects and composition information for the objects, to a receiver;
 - (b) at the receiver, storing in a cache memory at least one of the objects;
 - (c) processing the composition information received in the data bitstream to compose scenes from said objects including the one of the objects stored in the cache memory; and
 - (d) displaying the composed scenes.
2. The method of claim 1, further comprising, in addition to storing the one of the objects, storing expiration time data for the one of the objects.
3. The method of claim 1, with at least one of the objects being received from a network connection.
4. The method of claim 1, with at least one of the objects being received from local memory.
5. The method of claim 1, with at least one of the objects being received from local memory and at least one other of the objects being received from a network

connection, and with the composed scenes comprising the one and the other of the objects.

6. The method of claim 1, further comprising responding to interactive user input.

7. The method of claim 6, wherein responding comprises at least one of selecting, enabling and disenabling one of the objects.

8. Apparatus for displaying object-based audiovisual/video data, comprising,

(a) a controller circuit for controlling acquisition over time of streaming data including a plurality of audio visual/video objects and composition information for the objects;

(b) a cache memory for storing at least one of the objects;

(c) a composer circuit, coupled to the cache memory, for processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and

(d) a display for the composed scenes.

9. Apparatus for displaying object-based audiovisual/video data, comprising a processor which is instructed for:

(a) controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects;

- (b) storing in a cache memory at least one of the objects;
- (c) processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and
- (d) displaying the composed scenes.

10. Apparatus for displaying object-based audiovisual/video data, comprising:

- (a) means for controlling acquisition over time of streaming data including a plurality of audio-visual/video objects and composition information for the objects;
- (b) means for storing in a cache memory at least one of the objects;
- (c) means, coupled to the cache memory, for processing the composition information acquired in the streaming data to compose scenes from said video objects including the one of the objects stored in the cache memory; and
- (d) means for displaying the scenes.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.